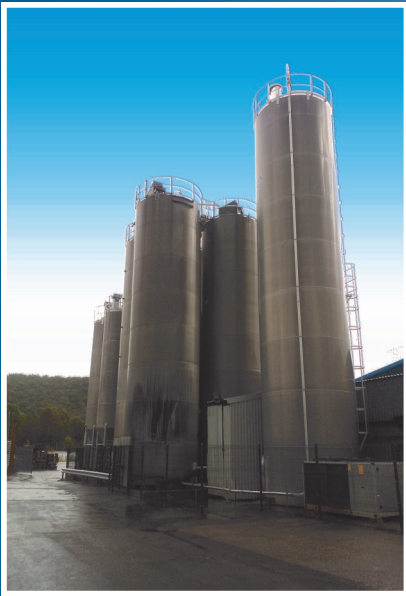


PVC Mixing Plant



Case Study 18:

STB completed an upgrade of a PVC Mixing Plant for a major UPVC product manufacturer based in South Wales.

The customer's brief was for STB to enhance the operation of the existing plant and expand the activity to encompass the manufacture of other PVC products.

PVC Mixing Plant

STB Engineering have been providing solutions to the Plastics and Polymers industries for 40 years, during which time we have installed over 70 PVC mixing plants and our pneumatic conveying systems feed hundreds of extruders and moulding machines.

Application:

Our client, a major UPVC manufacturer, wanted an upgrade to their existing PVC foam mixing plant which STB Engineering had originally installed in 2009. using a combination of new and second hand plant.

The plant works largely automatically, with ingredients dosed to the mixer via weighment hoppers principally from big bag dischargers, by computer control.

Objectives:

- ◆ To enable the addition of more PVC rework streams.
- ◆ To provide additional PVC resin and PVC finished product storage capacity.
- ◆ To enable addition of rework to a PVC blend.
- ◆ To enable the plant to manufacture PVC speciality grade products.
- ◆ To enable plant to manufacture PVC rigid grade products.
- ◆ Improve control of dust and noise.

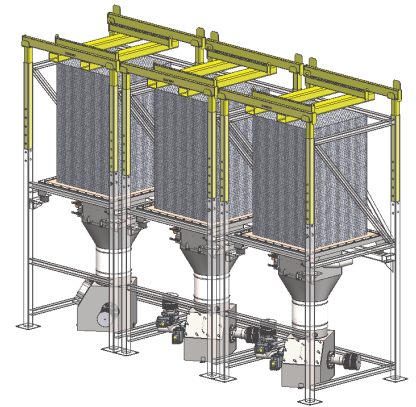
System Components:

Silos

Two refurbished silos, one manufactured and installed for foam dry blend and another one for resin. The silos were mounted on load cells, and fitted with high level probes.

Conveying/ connections associated with two new silos

- ◆ Tanker fill line to new resin silo
- ◆ Conveying system from new resin silo to existing conveying line, inclusive of new silo discharge take off arrangement
- ◆ Tanker fill line to new dry blend silo
- ◆ Replacement wear back bends on infeeds to existing silos



Big Bags

3 new big bag Station comprising:

- ◆ Flexible connections
- ◆ Neoprene rubber top
- ◆ Bag discharger hopper vibrator
- ◆ Isolation mounts
- ◆ Hopper support frame for fork truck bag mounting
- ◆ Fork truck bag lifting
- ◆ Frame hooks
- ◆ Painted structure
- ◆ Feed hoppers with no flow probes

The three new big bag frames were fitted in an individual frame construction, enabling adequate personnel and FLT access.

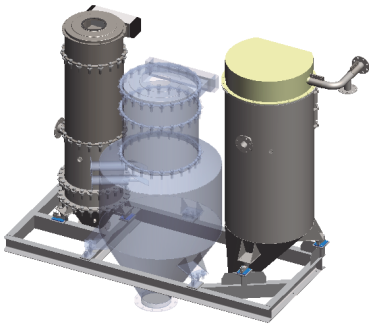
One existing big bag discharger had a new cone fabricated and installed of an enhanced design and was converted to a speciality product.

All system components were manufactured and installed by STB Engineering. All fabrications were of a suitable gauge material and designed to withstand normal plant use for 5 years plus without repair.

PVC Mixing Plant

Material Feed Hoppers

Existing ingredient weightment/transfer vessels were enlarged and upgraded to each take 100kg of material and fitted with access doors in the side of each vessel.



An existing unused weightment hopper was re-commissioned and a new filter cyclone was fitted with easy access ¼ turn detachable filter cartridges.

The filler flow rate was increased and the weightment vessel above the mixer was repositioned and enlarged.

New Dust Extraction System

Controlling the dust escaping in full, part full and empty bag situations was crucial. The dust extraction system on site was considered inadequate, with insufficient capacity for the extraction requirements of the equipment.

A new dust filtration unit was supplied, and installed to provide improved dust control for all new and existing equipment in the mixing plant.

Control/ Instrumentation

An additional operator screen was supplied, so that the plant could be operated from either or both screens. It is also now possible for one screen to be removed leaving the plant fully operational with just one screen.

All operations are SCADA controlled, with 100 recipes in total for the three products.



Client Testimonial:

"We were very pleased with the project under taken by STB. Tony carefully reviewed our requirement and specifications with us at the start of the project, and this paid dividends later as the project progressed very smoothly, being delivered on-time and on-cost with no variations.

The mixing plant was completed in 2 phases for us by STB. In both phases we made use of some second-hand plant items, which always introduces 'unknown' elements that can be hard to manage.



In the 2nd phase we were also in a 'live plant' situation, with STB having to work around production requirement, and this was done carefully with minimum risk and disruption.

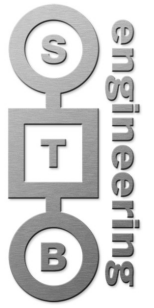
The design of the plant and the quality of the mechanical, electrical and control installation is first rate. Care was taken to ensure every point on our spec was fully completed to our satisfaction."

General Manufacturing Manager

STB keep in contact with all of our clients long after the job has finished and are always on call with advice and support.

If you would like to discuss how STB could help you with planning a similar installation, or make changes to an existing system, please do not hesitate to contact us.

STB Engineering: Bulk Materials Handling & Pneumatic Conveying Specialists

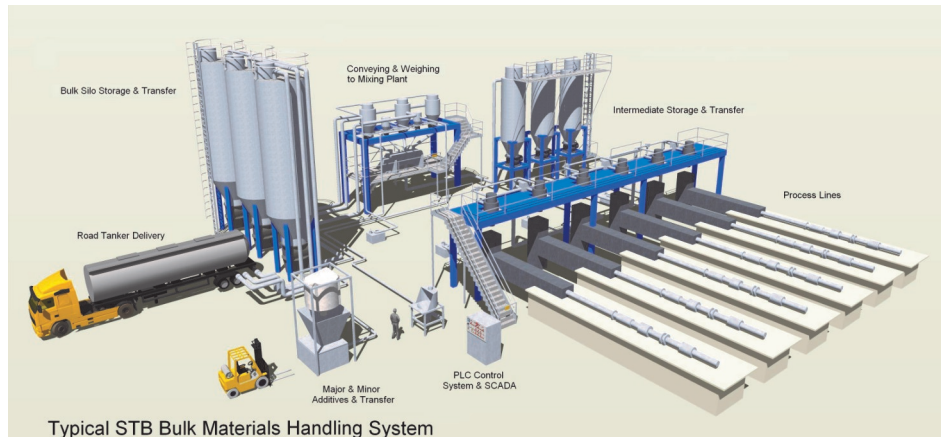


STB Engineering Ltd was founded in 1969, and had soon established itself as one of the UK's leading Bulk Materials Handling and Pneumatic Conveying specialists.

STB's success is the result of combining innovative and cost effective design concepts with the highest quality of engineering technology, all brought together by having the advantage of decades of in house engineering design and manufacturing experience.

We specialise in:

- ◆ Pneumatic conveying systems (dilute and dense phase)
- ◆ Weighing and feeding
- ◆ Storage and discharge
- ◆ Big bag and sack handling
- ◆ Control systems
- ◆ In house: project design and management, manufacture, installation and commissioning.



STB offer a total, end to end, in house solution for bulk materials handling, giving one point of contact and a system tailored to suit each specific application.

Using the latest Solidworks & AutoCAD design packages we manufacture our silos, vessels and conveyor systems in our purpose built factory in Stroud, Gloucestershire.

We are an ISO 9001 Quality Assured Company.



The people at STB are passionate about what they do and take great pride in their work. Our engineers have many years experience in solids handling and a thorough understanding of our customers' process needs and objectives.

Our dedication and commitment to our customers is at the forefront of everything we do which is why our customers keep coming back to us.

“Engineers who do what they say they will do”

